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I Feel Your Pain

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It seems the words fatigue and Soldier are almost synonymous. These two words together can spell disaster for all Soldiers, but it's especially true in the aviation community. Numerous investigations have focused on ways to alleviate and/or eliminate fatigue in aviation, and several studies involving stimulants have been conducted at the U.S. Army Aeromedical Research Laboratory using similar test schedules for simulator flights and mood evaluations. A recent dual-pilot study indicated, oddly enough, that some stimulants resulted in nearly equal performance as compared to previous single-pilot studies that examined twice the dosage of the same drugs. Since it's unlikely the lower doses of these stimulants produced the same behaviors to the same degree as the higher doses, psychosocial interaction—the interaction between the two pilots—provides the most plausible explanation for these results in dual-pilot crews.

To remove confounds of the drug and dosage, we isolated the psychosocial component of these studies by comparing mood and flight performance among the various placebo groups during comparable periods of sleep deprivation. Simulator flights focused on simple flight maneuvers. Regarding mood data, the Profile of Mood States and Visual Analog Scale were administered during similar times throughout the testing schedule. The POMS measured factors such as tension, depression, anger, vigor, fatigue and confusion. The VAS questionnaire asked how alert, anxious, energetic, confident, irritable, jittery, sleepy and talkative the test subjects were.

Analyses of these data found both groups demonstrated equal overall flight performance. Mood reports indicated the dual-pilot group reported significantly lower levels of tension and depression but higher levels of anger, anxiety and jitteriness. In general, however, the dual-crew teams exhibited significant trends toward lower negative mood traits and higher positive mood traits. Additionally, as compared to their baseline mood states, they took longer to reach their maximum moodiness (whether positive or negative) during periods of extended wakefulness than single-pilot crews.

The pilots in our dual-pilot studies seemed more social, more agreeable and less likely to express discomfort or complain than single subjects. Interactions between them, their co-pilot and the research staff indicated no loss of temper or social withdrawal as had been seen in previous studies. The pilots' mood data suggests they internalized any negative feelings and still were motivated by their co-pilot to perform. In addition, they felt they had not only a co-pilot but also a confidant and someone who could relate to their situation, in this case sleep deprivation.

These findings generally indicate pilots flying as a crew tend to motivate each other to do well and feel better. The psychosocial environment seemingly has significant effects on pilot mood during periods of sleep deprivation. These data underscore the need to examine the resilience and vulnerability of team behavior as a fatigue countermeasure. By doing so, we'll be better able to prepare our Soldiers for situations where fatigue can cause mission problems while they keep alert and look out for one another in the combat zone.